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Differential impact of independent and interdependent views of the self on the use of consensus and heterogeneity information: The case of validity of groups' decisions

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Abstract

In this article, we analyse the moderating effect of the activation of independent and interdependent views of the self on the use of heterogeneity and consensus information in the attribution of validity to group decisions. In two experimental studies, we present evidence showing that the participants, when primed with an interdependent view of the self, make no distinction between homogeneous or heterogeneous information regarding group composition while attributing validity to group decisions. Indeed, they base their validity attribution mainly on consensus information. In contrast, when primed with an independent view of the self, they make use of variability information as they attribute a greater validity to a more heterogeneous and consensual group and a lower validity to a group depicted as homogeneous and consensual. Results are discussed in light of the differential utility of consensus and heterogeneity information, as well as participants' self-knowledge within the processes of validation of group decisions.

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Keywords
consensus information, heterogeneity information, independence, interdependence, validation of group decisions

Résumé
Dans cet article, nous analysons les effets modérateurs de l'activation d'une perception de soi indépendante ou interdépendante sur l'utilisation des informations d'hétérogénéité et des informations de consensus dans l'attribution de validité prêtée aux décisions de groupe. Au travers de deux expériences, nous présentons des résultats qui tendent à prouver que, lorsque les participants doivent attribuer de la validité aux décisions de groupes, ceux qui sont conduits à une perception de soi comme étant interdépendants ne font pas de distinction entre les informations d'homogénéité versus celles d'hétérogénéité sur la composition des groupes. En effet, leur attribution de validité dépend principalement des informations de consensus. En revanche, les participants conduits à une perception de soi indépendante utilisent les informations d'hétérogénéité, puisqu'ils attribuent une plus grande validité à un groupe hétérogène et consensuel, qu'à un groupe décrit comme homogène et consensuel. Les résultats mettent en lumière le rôle différentiel des informations de consensus au regard des informations d'hétérogénéité et des connaissances de soi des participants dans le processus de validation des décisions de groupe.

Mots clés
information de consensus, information d'hétérogénéité, indépendance, interdépendance, validation des décisions de groupe

Introduction

In real life, as third-party laypeople,[1] we are often faced with numerous decisions or opinions and we are led to judge their validity. For instance, we are frequently asked to state whether we are pro or con a new governmental policy for tax-raising; whether we agree or disagree about allowing same-sex couples to adopt children, etc. In order to state our opinions or support our decisions, we often lack the necessary knowledge and rely on the informational cues available to help us reduce uncertainty and respond in a reliable and valid way. But is the use of these informational cues moderated in any way by contextual factors, namely individuals' self-knowledge?

In this article, we will provide a brief summary of the main approaches explaining the perception of validity of opinions or decisions; we will then present theoretical and empirical evidence arguing for the important role of group consensus and heterogeneity within this realm. Afterwards, we will argue for the impact of individuals' self-knowledge on the use of group consensus and heterogeneity information in the process of perceiving validity in groups' opinions and decisions. And finally, we will present two experimental studies illustrating this particular role of individuals' self-knowledge.

This investigation is particularly relevant for several reasons. First, the literature regarding the importance and impact of group information on the perceived validity of

groups' decisions is scarce and dated. Second, this line of research is particularly relevant for the understanding of the most efficacious ways underlying team building and team composition, affecting team-work and interpersonal relationships within this specific type of groups. Third, this research also contributes to the understanding of the importance of groups' decisions and their impact on everyday life of third-party laypeople. Fourth, in this article, we bridge two theoretical frameworks that, until now, have been separated so that, to our knowledge, their joint effects were never empirically tested.

Opinions and decisions validation framework

Traditionally, consensus has been put forward as a major cue used by individuals to judge the validity of groups' decisions or opinions (Festinger, 1954; Krueger, 2000). And, in fact, when using consensus information one might perceive a greater validity in the position of a more consensual group than that of a less consensual one (Bohner et al., 2008).

However, other informational cues can be called up to help individuals judge the validity of groups' decisions or opinions. As Goethals et al. (1979) point out, individuals might use information regarding the variability or heterogeneity of group members contributing to a consensual opinion or decision. Specifically, Goethals et al. (1979) propose that group members endorsing a specific opinion tend to perceive heterogeneous rather than homogeneous others as endorsing a similar opinion (i.e. the 'diversity effect'), this being the result of a motivation to perceive a greater validity in the opinions they sustain.

Both the consensus and variability hypotheses have been supported by correlational (Goethals et al., 1979; Vala et al., 1998; Batel and Castro, 2009) and experimental studies (Reckman and Goethals, 1973; Goethals and Nelson, 1973; Augustinova et al., 2004, experiments 1 and 2). Specifically, a series of experimental studies carried out by Lopes et al. (2007) showed that participants perceived a greater validity in decisions or opinions of a highly consensual group when compared to a less consensual one. More interestingly, these studies also showed that greater validity was attributed to decisions or opinions of a heterogeneous group, while a lesser validity was attributed to a homogeneous one.

In general terms, these findings can be framed within the assumption that people not only create and share knowledge about reality (Hardin and Higgins, 1996; Thompson et al., 1999), but also share the principles through which they can produce an accurate view of the reality (Kruglanski, 1989). However, literature has been arguing that cognitive or situational aspects shape the use of shared principles, as it is the case of consensus and heterogeneity informational cues (Chambres et al., 2002; for an empirical illustration see Badea et al., 2012). Thus, the question addressed in this article regards the impacts of the activation of self-knowledge on the use of consensus and heterogeneity information while judging the validity of groups' decisions by third-party laypeople.

Self-knowledge and the use of consensus and heterogeneity information

A bulk of empirical research shows that self-knowledge has implications in the ways people sample, assess and process information leading to differences in social behaviour (Cross et al., 2011; Kühnen and Oyserman, 2002; Markus and Kitayama, 1991a, 1991b,

2003). Following Triandis (1989), we can argue that independent-self individuals give priority to their personal goals over the goals of the collective, and perceive themselves as more independent of other persons (Oyserman et al., 2002), which could prompt them to perceive a greater heterogeneity among groups of individuals.

Interdependent-self individuals, on the contrary, do not make such a distinction between personal and collective goals; they share resources and feel interdependent relative to other persons of the same group (Triandis, 1989); or share a common heritage and background and perceive society as an 'extended family' (Earley and Gibson, 1998). In this sense, and unlike interdependent-self individuals, independent-self individuals could be more prone to perceive groups of individuals as homogeneous entities.

Moreover, other researches also show that priming aspects of the self clearly impacts on the ways people process information (Ybarra and Trafimow, 1998; Aaker and Lee, 2001; Kühnen and Oyserman, 2002). For example, Aaker and Maheswaran (1997) argue that members of collectivist cultures tend to adopt heuristic rather than systematic strategies of information processing. Inversely, members of individualist cultures do not share these same strategies. Indeed, these authors empirically demonstrate that consensus (a heuristic information cue; Bohner et al., 2008) has high diagnosticity in collectivist cultures, and low diagnosticity in individualist ones. A similar argument is proposed by Bechtoldt et al. (2010) suggesting that the tendency to seek social consensus is stronger among individuals with a pro-social (i.e. interdependent) rather than a pro-self (i.e. independent) motivation.

Bearing these arguments in mind, we believe that the promotion of interdependent or independent self-knowledge might impact differently in the process of validation of groups' decisions, especially regarding the perceived utility of the information conveyed by group consensus and heterogeneity (Goethals, 1976; Goethals and Darley, 1977; Goethals and Klein, 2000). This means that when an independent self-construal is promoted individuals might perceive a greater relevance in heterogeneity information, while lower relevance is perceived in consensus information. Thus, assuming that consensus has lower diagnosticity and conveys the impressions of a homogenized ensemble of group members, independent-self individuals might be more prone to sample individualized information (i.e. heterogeneity information) than to ascertain consensus composition.

On the contrary, promoting an interdependent self-construal might lead individuals to focus on similarities between self and others and pay less attention to individualized information (i.e. heterogeneity information). As a result, similarities between individuals (i.e. group homogeneity information) might be, in this latter case, entangled with the information about consensus, which might lead interdependent-self individuals to overlook this type of information. In this case, group heterogeneity information might be downgraded because it does not match consensus information. And this might be the case because consensus originates from the perception that a majority of individuals agree with a specific position (Moscovici and Doise, 1992), and not from the perceived composition of this majority in terms of the heterogeneity or the homogeneity of individuals, nor from the processes through which individuals come to agree with each other (Lopes et al., 2007; Vala et al., 2011; Lopes, Vala, Oberlé and Drozda-Senkowska, 2014). Therefore, in a situation where an interdependent self-construal is promoted, consensual

information, and not heterogeneity information, will be more relevant in the process of validating groups' decisions.

It should be noted that we are positing that consensus information is relatively unaffected either by the activation of interdependent or independent self-construal. Indeed, and as proposed by dual-process models of information processing, we know that consensus information is assumed to have a heuristic value (Darke et al., 1998) and that heuristic information is rather independent of the activation of cognitive or contextual constraints (Gigerenzer and Brighton, 2001).

Overview of studies

In the two studies presented below, we analyse the differential effects of activation of independent or interdependent self-construal on the use of group consensus and heterogeneity information in the validation of groups' decisions and opinions paradigm following Lopes et al. (2007) procedure. In this sense, and building on these procedures, we are hypothesizing that, when an interdependent self-construal is promoted, the participants will base their judgements on consensus information. Accordingly, they will not make use of heterogeneity information while judging the validity of groups' decisions. Inversely, when an independent self-construal is promoted, they will be more attentive to individual information, and they will be more prompt to make use of heterogeneity information in association with consensus so as to perceive validity in groups' positions.

The studies presented in this article use different priming manipulations of independent or interdependent views of the self. In study 1, a procedure similar to the one used by Kühnen and Hannover (2000) was deployed, but introducing some modifications. Instead of scrambled sentences, incomplete or truncated sentences were used (see Verplanken and Holland, 2002, study 2, for a similar procedure). In study 2, we adapted the pronoun-circling task of Brewer and Gardner (1996) and Gardner et al. (1999) and reinforced it as a task that should be carried out in groups (interdependent-self reinforcement) or individually (independent-self reinforcement).

Ethical statement

All the procedures performed in this article involving human participants were in accordance with the ethical guidelines of ISCTE-IUL. The studies were non-invasive, non-deceptive and all data were analysed anonymously. All participants read an informed consent with the description and purpose of the studies and were informed that, by proceeding, they consented to participating, but that they could withdraw at any stage of the studies.

Study 1

Overview and design

Based on our previous argumentation, we predicted in this first study that, when an interdependent view of the self is promoted, participants will not make use of heterogeneity

information while perceiving validity in a group's decision, but will base their judgement on consensus information. Inversely, when an independent view of the self is activated, they will make use of heterogeneity information in association with consensus.

The design of this study was a 2 (self-construal priming: independent, interdependent) × 2 (group variability: equal variability in both groups, higher variability in one group than in the other) between-participants design. Group consensus (equal and high consensus in both groups) was controlled across groups.

Method

Participants. Seventy undergraduates enrolled in different university majors participated voluntarily in this study (females: 54.3%). The age of the participants varied from 18 to 33 years old ($M = 20.91$; $SD = 3.42$).

Procedure. This study was run with four participants per session. Each participant was randomly assigned to one of the conditions of the design and seated at a desk in front of a computer.

Each experimental session comprised two phases ostensibly presented as non-related to each other. Following the procedure of Kühnen and Hannover (2000) and Verplanken and Holland (2002, study 2), in the first phase, the participants were primed with an interdependent or independent view of the self. In the second phase, they were presented with the task of validating groups' opinions and decisions already deployed in our previous experimental studies (Lopes et al., 2007).

To cover the fact that these two phases pertained, in reality, to the same study participants were told that the task of validating group's decisions was part of a study led by another researcher who was asking for their collaboration. At the end of the session, they were fully debriefed and thanked. Special attention was given to the debriefing of the deception that the participants were subject to with the presentation of a single study as two non-related experiments. None of them reported any suspicion about the experimental procedure.

Independent and dependent variables

Phase 1: Activation of independent and interdependent views of the self. The participants were informed that they were going to see four sentences presented on a computer screen for 3 seconds each and that they should read them attentively and try to memorize them. Sentences were adapted from the Triandis et al.'s (1988) 'self reliance with competition' and 'distance from in-groups' scales; from Triandis and Gelfand's (1998) 'horizontal and vertical individualism and collectivism' scale; and from Singelis's (1994) 'self-construal scale', so that item wording would relate to the scenario presented in phase 2 (independent self-construal: 'In general I prefer to depend on myself, even when I work in a team', 'I am not to blame when one of my co-workers fails'; interdependent self-construal: 'Giving to my colleagues is beneficial for me also', 'I like to share the resources that I possess with my co-workers').

After this, each participant received a booklet depicting the sentences they had previously seen. However, these sentences were truncated. The participants were asked to complete them with the help of three possible solutions [for example, 'I feel good when_____ (1) I work with my colleagues, (2) I cooperate with my colleagues, (3) I am with my colleagues']. Similarly to Kühnen and Hannover's (2000) priming, any of the solutions would complete the sentence in such a way that it would reflect either an independent or an interdependent self-construal.

Phase 2:Validation of groups' decisions scenario. At the onset of this phase, each participant received a new booklet. In it an everyday life situation was described, specifically the process of decision making regarding a new organizational strategic plan: two groups of collaborators were involved in the decision process – group 'A' and group 'B' – and these groups had opposing views concerning this strategic plan. Both groups sustained their ideas with high consensus (participants were told that 80% of the members supported their group's strategic plan), and were presented as composed either of homogeneous or heterogeneous members. The actual plans were never presented to the participants. After this, they had to evaluate the credibility regarding the decision of each group (i.e. group A and group B) based on the information presented. This procedure was adapted from the scenarios used in previous experimental studies (Lopes et al., 2007).

Group members' homogeneity vs. heterogeneity. The participants in the 'equal variability in both groups' condition read that both groups were either homogeneous (i.e. composed of members belonging to the same departments of the organization – either financial or human resources management or even research and forecasting departments), or heterogeneous (i.e. composed of members belonging to different departments of the organization – one third of members from financial department, one third from human resources management department and one third from research and forecasting department).

In the condition of 'higher variability in one group than in the other', the participants read that one group was homogeneous (i.e. composed of members belonging to the same department of the organization) whereas the other was heterogeneous (i.e. composed by members belonging to different departments of the organization).

Dependent variables

The participants were asked to rate the credibility that they perceived in the strategic plan of group A and group B on a nine-point Likert-type scale (1 = low credibility; 5 = moderate credibility; 9 = high credibility). Following Lopes et al. (2007), we computed a difference score between the credibility attributed to groups B and A, and used it for our analyses. This score ranges from -8 (lowest credibility attributed to group B) to +8 (highest credibility attributed to group B), with 0 indicating equal credibility attributed to both groups. This difference score is a reasonable measure to depict the perceived distance in terms of credibility between the two groups under evaluation.

At the end of the questionnaire, participants answered some socio-demographic questions, specifically their age and gender.

Table 1. Means and standard deviations of attributed credibility, and number of participants per design condition (study 1).

	Interdependent self prime	Independent self prime
Equal variability in both groups	0.05	−0.29
	(0.51)	(0.99)
	20	17
Higher variability in one group	0.25	1.35
	(1.65)	(2.08)
	16	17

Results

Table 1 presents a summary of means and standard deviations of perceived credibility and number of participants per design condition.

Our hypotheses were tested with a 2 (self-construal priming: independent, interdependent) × 2 (group variability: equal variability in both groups, higher variability in one group than in the other) analysis of variance (ANOVA). Results showed a variability main effect, $F(1,70) = 7.45$, $p < .01$, $\eta_p^2 = .10$, *95% CI* [.015, .213], evidencing that the participants tended to perceive more credibility in group B when it was presented as more heterogeneous than in group A ($M_{\text{equal variability in both groups}} = -.11$, $SD = .77$ *vs.* $M_{\text{higher variability in one group than in the other}} = .82$, $SD = 1.94$, $d = .65$, *95% CI* [.315, .983]). This result replicated our previous findings (Lopes et al., 2007). Also, the predicted contextual activation × group variability interaction was significant, $F(1,70) = 4.57$, $p < .04$, $\eta_p^2 = .06$, *95% CI* [.002, .167]. The self-construal priming was non-significant, $F(1,70) = 1.26$, $p < .27$, $\eta_p^2 = .02$, *95% CI* [.000, .096]. The mean square error (MSE) for each of these effects was 1.99.

Simple effects were calculated over this interaction effect. The differences between the credibility perceived in group A and group B under the activation of an interdependent view of the self proved non-significant, $F(1,36) = 0.26$, $MSE = 1.35$, $p = 0.61$, $\eta_p^2 = .01$, *95% CI* [.000, .105], showing that the participants perceived similar levels of credibility in both groups, even in the condition where one group was depicted as more heterogeneous than the other ($M_{\text{equal variability in both groups}} = .05$, $SD = .51$ *vs.* $M_{\text{higher variability in one group than in the other}} = .25$, $SD = 1.65$, $d = .18$, *95% CI* [-.190, .550]).

Under the activation of an independent view of self, the participants perception of credibility in group A's and group B's positions proved to be different, $F(1,34) = 8.64$, $MSE = 2.67$, $p < .01$, $\eta_p^2 = .21$, *95% CI* [.037, .377], showing as predicted that the participants perceived a greater validity in the decision of the more heterogeneous group ($M_{\text{equal variability in both groups}} = -.29$, $SD = .99$ *vs.* $M_{\text{higher variability in one group than in the other}} = 1.35$, $SD = 2.09$, $d = 1.04$, *95% CI* [.506, 1.572]).

Discussion

In this study, we provided initial evidence for the moderation effect of the activation of independent and interdependent views of the self on the use of the heterogeneity

information in perceiving the validity of group decisions. Indeed, the interaction effect between self-construal priming and group variability clearly showed that when an independent view of the self is activated, the participants use heterogeneity information while perceiving credibility in the decisions of a group. On the contrary, this same usage is impaired under the activation of an interdependent view of the self.

Although our hypotheses were generally supported by this study, the understanding of this moderation was not fully addressed, mainly due to design constraints. The first one concerns the absence of a full consensus manipulation that prevented us from testing our hypotheses in a complete way, especially under the interdependent self-activation. In fact, our results do not unequivocally show that the participants under this priming activation rely on consensual information and overlook heterogeneity information.

A similar problem might be raised for participants under the independent-self priming, because our hypotheses predict the use of consensus and heterogeneity information to judge the validity of group positions. Study 2 will provide evidence that allows us to overcome these problems by replicating the effects of the independent and interdependent priming in a design where consensus (high vs. low) and heterogeneity information are fully manipulated.

Furthermore, it could be argued that our priming manipulation might have interfered in unexpected ways with the situation presented in the second phase of the experiment. In reality, the activation of independent and interdependent views of the self might have facilitated the participants' beliefs concerning group functioning, which in turn might have influenced the answers in phase 2. In the following study, the priming situation is totally orthogonal regarding the validation scenario, thus promoting the internal validity of our experimental paradigm.

Study 2

Overview and design

In this study, the priming technique followed the pronoun-circling task procedure proposed by Brewer and Gardner (1996). Contrary to study 1, group consensus was manipulated along with the heterogeneity of group composition, and additional items tapping the participants' perceived validity in both groups' decisions were introduced.

Following the hypotheses set in study 1, in the present study we predicted a triple interaction involving self-knowledge priming, consensus and variability information. In this sense, under the activation of an interdependent view of the self, and when two groups were presented as having equal consensus, the participants would not differentiate the perceived validity of these groups' decisions despite their characterization in terms of variability. An inverse pattern was expected for the conditions in which the two groups were described as varying in terms of consensus. Thus, when one group was more consensual than the other, the participants were expected to attribute a greater validity to the more consensual group, independently of their characterization in terms of variability. Briefly, under the activation of an interdependent view of the self, we expected the effect of consensus to prevail while still with a non-significant main effect of group variability.

When an independent view of the self was activated, and the two groups were depicted as having equal consensus, we expected the participants to perceive equal validity in groups' decisions. When the groups were presented as differing in terms of consensus, a greater validity would be perceived in the more consensual group. But contrarily to the interdependent-self priming, we were also expecting group variability information to impact perceived validity. In this sense, independent-self participants would perceive a greater validity in a group presented as heterogeneous, as opposed to a homogeneous one, while equal validity would be perceived when groups were presented as equally heterogeneous or homogeneous. In a nutshell, under the activation of an independent view of the self we expected two significant main effects; one of consensus and one of group variability.

Our hypotheses were tested with a 2 (self-construal priming: independent, interdependent) × 2 (consensus: equal consensus in both groups, higher consensus in one group than in the other) × 2 (group variability: equal variability in both groups, higher variability in one group than in the other) between-participants design.

Method

Participants. One hundred and eighteen psychology undergraduates participated in this study (females: 66.9%). Their ages varied from 17 to 31 years old (M = 21.36; SD = 3.38). Participants received credits for their collaboration.

Procedure. Each session comprised a maximum of six participants randomly assigned to one of the design conditions and each was composed of two studies ostensibly presented as non-related. In the first study, the participants had to perform a task involving 'organizing daily information'. This first study was used to activate an independent or interdependent view of the self, following Brewer and Gardner's (1996) procedure.[2] The second study was introduced by a new experimenter, and comprised the presentation of the validation of groups' decisions scenario described below.

At the end of the session, the participants were fully debriefed and thanked. Again, special attention was given to the debriefing of the deception that the participants were subject to with the presentation of a single study as two non-related experiments. None of them reported any suspicion about this experimental procedure.

Independent and dependent variables

Activation of independent and interdependent self-construal. In the activation of the condition of 'interdependent view of the self', every six participants arriving at the lab were asked to form two groups of three persons each. After this, they received a booklet for completion. On the first page, the participants were provided with instructions informing them they were going to perform a group task. It was also mentioned that previous empirical studies showed this task to be better performed in a group environment than individually. This aimed at fostering interdependence and a sharing experience among participants.

The second page of the booklet introduced the 'organization of daily information' task consisting of a search for words in a text, adapted from Brewer and Gardner (1996). Thus, under the 'interdependent view of the self' condition, the participants had to search the text for plural pronouns (i.e. 'we', 'ours', etc.). There were exactly 41 pronouns scattered in the text. It described a neutral daily situation in which a couple were leaving their home in the morning to take their son to school. No specific instructions were given regarding the way groups should work throughout the task. They were only instructed to do it collectively.

The independent view of the self was activated using a similar procedure. This time, the instructions stressed that the participants had to perform the search task individually, and that previous empirical research had shown that people perform better when the task is carried out individually. These instructions aimed at creating a more independent and individual experience during the task. As in the former condition, the participants could identify up to 41 singular pronouns (e.g. 'me', 'mine', etc.) scattered through the text.

Validation of groups' decisions scenario. In the second part of the experiment, each participant received a booklet containing a scenario which described a decision-making process over the choice of a new logo for a students' union. Two groups of students were involved in this decision task – group 'A' and group 'B' – and they had opposing views regarding the logo. Both groups were characterized in terms of the consensus sustaining their logo preference, and the variability of their internal composition. The actual logos were never presented to the participants.

Characterization of groups in terms of consensus. The participants were told that both groups held their preferred logo with equal consensus (about 80% of the members agreed with the logo selected by their group), or that members of group B held their preferred logo with higher consensus (about 95% of members of group B agreed with the chosen logo), while members of group A held their preference with lower consensus (about 65% of members of group A agreed with the selected logo).

Group members' homogeneity vs. heterogeneity. In addition, groups were described in terms of their internal composition, that is, in terms of the variability of their members. Hence, in the condition 'equal variability in both groups', the participants read that both groups (A and B) were either homogeneous (i.e. composed by students studying for the same major) or heterogeneous (i.e. composed by students studying for different majors). The participants in the 'greater heterogeneity in one group than in the other' condition learned that one group was homogeneous (i.e. group A was composed by students studying for the same major), whereas the other was heterogeneous (i.e. group B was composed by students studying for different majors).

Dependent variables

After the presentation of the logo decision scenario, the participants were asked to rate whether each group's decision was valid versus invalid, correct versus incorrect, credible

versus not credible, adequate versus inadequate, and unjustified versus justified. All these items were measured on a semantic differential scale ranging from 1 to 6.

As in the previous study, an index of validity was computed using the different items rated by the participants (group A ratings internal consistency: $\alpha = 0.90$; group B ratings internal consistency: $\alpha = 0.88$). This single measure was obtained by subtracting the scores of validity attributed to group B from that attributed to group A. This validity index varies between -5 (highest validity attributed to group A) and + 5 (highest validity attributed to group B); in this index, 0 means that equal validity was attributed to groups A and B.

At the end of this questionnaire, the participants were asked to answer some socio-demographic questions, namely their age and gender.

Results

To test our hypotheses, a 2 (self-construal priming: independent, interdependent) × 2 (consensus: equal consensus in both groups, higher consensus in one group than in the other) × 2 (group heterogeneity: equal heterogeneity/homogeneity in both groups, greater heterogeneity in one group than in the other) ANOVA was deployed. Table 2 presents a summary of means and standard deviations of perceived validity and number of participants per design conditions.

The ANOVA results showed a main effect of consensus, $F(1,118) = 14.38$, $p < .000$, $\eta_p^2 = .11$, *95% CI* [.035, .200], a main effect of group variability, $F(1,118) = 4.48$, $p < .04$, $\eta_p^2 = .04$, *95% CI* [.001, .106], and a main effect of self-construal priming $F(1,118) = 16.83$, $p < .000$, $\eta_p^2 = .13$, *95% CI* [.046, .219]. The main effect of consensus showed that the participants in the condition of 'higher consensus in one group than in the other' perceived a greater validity in group B's decision ($M = .66$, $SD = .90$) than those in the condition of 'equal consensus' ($M = .15$, $SD = .63$), $d = .67$, *95% CI* [.526, .803].

The main effect of group variability showed that the participants in the 'greater heterogeneity in one group than in the other' condition perceived a greater validity in group B's decision ($M = .54$, $SD = .94$), than in the condition in which both groups were presented as having equal heterogeneity/homogeneity ($M = .26$, $SD = .63$), $d = .35$, *95% CI* [.207, .494].

More interestingly, a significant triple interaction self-construal priming × consensus × group heterogeneity was obtained, $F(1,118) = 3.90$, $p = .05$, $\eta_p^2 = .03$, *95% CI* [.000, .099]. All the remaining interaction effects were non-significant, specifically self-construal priming × consensus, $F(1,118) = .38$, $p = .54$, $\eta_p^2 = .003$, *95% CI* [.000, .040], self-construal × group variability, $F(1,118) = 2.71$, $p = .10$, $\eta_p^2 = .023$, *95% CI* [.000, .083], and consensus × group variability, $F(1,118) = .18$, $p = .68$, $\eta_p^2 = .002$, *95% CI* [.000, .032]. The triple interaction was decomposed into two double interaction effects by self-knowledge priming as described below. The MSE for each of the main, double, and triple effects was .50.

Regarding the activation of an independent self-construal, the results portrayed a main effect of consensus, $F(1,54) = 7.52$, $p < .01$, $\eta^2 = .12$, *95% CI* [.019, .260], and more importantly a main effect of group variability, $F(1,54) = 5.48$, $p < .03$, $\eta^2 = .09$, *95% CI* [.007, .224]. The interaction effect did not reach significance, $F(1,54) = 2.22$, $p = .14$,

Table 2. Means and standard deviations of attributed validity, and number of participants per design condition (study 2).

	Interdependent self prime		Independent self prime	
	Equal consensus in both groups	Higher consensus in one group	Equal consensus in both groups	Higher consensus in one group
Equal variability in both groups	0.03 (0.08) 16	0.24 (0.90) 16	0.01 (0.06) 14	0.90 (0.58) 12
Higher variability in one group	−0.12 (0.50) 17	0.50 (0.82) 15	0.82 (0.99) 13	1.08 (1.01) 15

η^2 = .04, *95% CI* [.000, .150]. The MSE for each of these effects was .60. In agreement with our hypotheses, the main effect of consensus showed, as predicted, that the participants in the condition of 'higher consensus in one group than in the other' perceived greater validity in group B's decision (M = 1.00, SD = .83) than when groups were presented as equally consensual (M = .40, SD = .79), d = .76, *95% CI* [.54, .97].

More importantly, the main effect of group variability showed that the participants perceived a greater validity in group B's decision in the condition of 'higher variability in one group than in the other' (M = 0.96, SD = .99), than in the condition in which both groups were presented as having equal variability (M = 0.42, SD = .59), d = .66, *95% CI* [.45, .88].

Turning now to the activation of an interdependent view of the self, results showed a main effect of consensus, $F(1,64) = 6.55$, $p < .02$, $\eta_p^2 = .09$, *95% CI* [.011, .214]. The main effect of group variability did not attain significance, $F(1,64) = .14$, $p = .71$, $\eta_p^2 = .002$, *95% CI* [.000, .053]. The interaction was also non-significant, $F(1,64) = 1.57$, $p = .22$, $\eta_p^2 = .02$, *95% CI* [.000, .113]. The MSE for each of these effects was .42. In agreement with our hypotheses, the main effect of consensus reveals that the participants perceive a greater validity in group B's decision in the 'higher consensus in one group than in the other' condition (M = .37, SD = .86), rather than in the condition in which the two groups were presented as having equal consensus (M = -.05, SD = .36), d = .65, *95% CI* [.49, .81].

Discussion

In this second study, the participants were primed with independent and interdependent views of the self through the use of a different priming technique and were presented with a new scenario of validation of groups' decisions. This new priming was objectively unrelated to the scenario presented in the second phase of the experiment, so that explanations related to an eventual interference of the priming with the scenario could be dismissed. In addition, the validation scenario manipulated consensus instead of controlling it across the design conditions (as was the case in study 1), so that the role of this information could be fully understood within the scope of activating independent vs.

interdependent views of the self. Furthermore, new items were added to the measurement of the perceived validity of group decisions.

The results of this second study generally supported our hypotheses. Indeed, with the activation of an independent view of the self, the participants perceived a greater validity in the heterogeneous group's decision than in the homogeneous one's, while not distinguishing the groups in terms of their validity when depicted as equally variable. Moreover, when groups were presented as differing in terms of consensus, the participants perceived a greater validity in the more consensual one, while when presented as equally consensual, the same levels of validity were perceived in both groups. These results replicate those of study 1, but extend them so as to allow the understanding of the role of consensus under the activation of an independent view of the self. In fact, in the present study these results enable us to conclude that the participants primed with an independent view of the self make use of variability information alongside consensus information.

The results concerning the activation of an interdependent view of the self also replicate the results of study 1, showing that, in the conditions where they were perceived as equally consensual, the participants did not differentiate the perception of validity in group positions not even when one group was characterized as more diverse than another. In fact, in the conditions in which groups differed in terms of consensus and variability, the participants perceived a greater validity in the more consensual group, independently of variability manipulation.

Conclusions

In this article, we analysed the moderating effect of activating independent vs. interdependent views of the self on the use of heterogeneity and consensus information while perceiving validity in groups' decisions. This moderator was chosen for two main reasons. First, as we pointed out in the introduction, literature on independent and interdependent self-construal agrees that these differential views of the self have an impact on the ways people process social information (Cross, Hardin, Gercek-Swing, 2011; Kühnen & Oyserman, 2002; Markus & Kitayama, 1991a, 1991b; Markus & Kitayama, 2003). In fact, we reviewed evidence that associates independent self-construal with a greater focus on individualized information and preference for heterogeneity information (Oyserman et al., 2002), whereas interdependent self-construal emerges as associated with preferences for group level (i.e. consensual) information (Triandis, 1989). Thus, both theoretical and empirical evidence of this differential information-processing process was presented and appears as highly relevant within the context of validating groups' decisions.

Second, we argue that heterogeneity information might cue people to perceive that consensus is composed of individuals that do not share personal bias and that contribute in an independent way to its construction as shown by Vala et al. (2011). This argument is particularly true if we activate an independent view of the self, because heterogeneity information is used to heighten the perception of validity in groups depicted as heterogeneous and consensual, while downgrading the perceived validity of homogeneous and consensual groups. In this case, it is reasonable to sustain that heterogeneous consensus

is deemed equivalent to consensus stemming from the individual and independent contribution of those that compose a group (Asch, 1952; Levine, 1999). Inversely, under the activation of an interdependent view of the self, variability information proves meaningless, because cognitive or situational factors lead individuals to disregard individualized information, that is, to generally base their perception of validity in group decisions using consensus information.

In agreement with this framework, in study 1, we set out how the participants primed with an interdependent view of the self made no distinction between homogeneous or heterogeneous group compositions while perceiving validity in their decisions. In contrast, when primed with an independent view of the self, the participants made use of variability information in perceiving a greater validity in the more heterogeneous and consensual group and lower validity in the group depicted as homogeneous and consensual.

The results of the second study further support our predictions, this time providing clearer evidence to the fact that, with the activation of an interdependent view of the self, the participants disregard variability information while perceiving validity of group decisions. In fact, only the main effect of consensus emerged in our results, showing that they tended to perceive a greater validity in the group presented as more consensual, and not to differentiate the validity perceived in both groups when presented as equally consensual.

Inversely, under the activation of an independent view of the self, the participants made use of heterogeneity and consensus information while perceiving validity in the decisions of both groups, a result confirmed by the presence of a significant consensus main effect and a significant main effect of variability. In this specific situation, the results also show that the participants perceived the consensus made up by heterogeneous individuals as more valid because they were assuming that heterogeneity provides individualized information. This in turn allows them to view consensus as stemming from the independent contribution of the individuals creating it, discounting the explanation of a consensus based on shared personal bias (Goethals & Darley, 1977; Goethals & Klein, 2000), which is more suitable to homogeneous groups reaching consensual agreement.

Taking our results further we could argue that the priming of independent and interdependent self might have raised the participants' concerns regarding informational vs. normative influence (Deutsch & Gerard, 1955). In fact, classic and recent studies in the domain of social influence, and especially in conformity evidence that interdependent individuals (Berkowitz, 1957; Bond & Smith, 1996) or collectivists (Oh, 2013) show higher levels of conformity than independent individuals (Di Vesta, 1959) or individualists. And this is the case, because, among interdependent individuals, it is believed that the nature of the major force operating is normative influence (Lascu & Zinkhan, 1999). However, it is also true that interdependent individuals conform less to majority norms, especially when they are unclear and sanctions are not likely to be imposed (Frager, 1970).

In any case, our studies were not driven by classic conformity paradigms (e.g. Asch-type conformity setting) and did not impose any sanctions to the participants, who were free to state their decisions based on the information given in the scenarios. In this sense, it seems plausible that, in our studies, individuals primed with an interdependent view of the self might have followed the consensual information presented in the scenarios – a normative influence cue (see Moscovici, 1980; Cialdini & Goldstein, 2004) – as an

influential cue to attribute validity to group decisions, thus lowering the costs of being inaccurate.

Inversely, individuals primed with an independent view of the self, and as such with informational influence concerns, might have sought for more information that could ascertain the veracity of the consensus information presented in the scenarios. In this sense, heterogeneity of group composition provided them with a cue to validate the consensus reached in each group presented, because it ascertained that consensus was reached by the agreement of relatively independent sources (Asch, 1952; Lopes et al., 2014) and helped testifying the validity of the decisions reached by the group. However, these explanations should be further explored in future research.

Our results have also different impacts at an applied level, namely regarding effective group composition and decision making. On the one hand, the results show how group composition can be optimized to help group members perceive a greater validity in the produced outputs. Consequently, assembling more heterogeneous groups can set the stage for creating task forces or working teams where members can share a more participative environment and empower them through the perception of the importance of their independent contribution to produce valid group outputs. On the other hand, these results also have an impact on groups' decision-making processes, because a consensus reached by heterogeneous groups produces decisions that are perceived by third-party laypeople as having greater quality and validity than those created by homogeneous groups. These results are in line with other classical findings in social psychology (e.g. group think, Janis, 1972), as they show that the decisions made by groups pressured into uniformity, or by members of groups aiming for homogeneity in positions and socio-psychological characteristics, are deemed invalid, producing deleterious effects at group level.

Future studies should foster the knowledge concerning the moderators of the use of consensus and heterogeneity information, for example under different epistemic motivations. In this sense, future studies could be run analysing the moderating impact of need for cognitive closure (Kruglanski, 2004) on the use of these two sources of information for validation of group productions. Also, studies manipulating the participants' cognitive resources for information processing could give us more knowledge regarding the ways consensus and heterogeneity information is processed and its interplay on validation of groups decisions and opinions.

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Notes

1. As third-party laypeople, we refer to individuals that do not belong to or participate in groups making important decisions, but whose decisions will in any way affect their own lives.
2. The complete materials used in this first phase are available upon request from the first author.

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